WHAT IS CLAIMED IS:

1.   A universal interface for accessing one or more
information systems from a telephone, each of the
5   information systems being adapted to generate text data or
speech data in response to a query, the universal interface
comprising:
     an interface control module for receiving a sound-based
command from a user and for sending a corresponding machine
10   readable command to a source selected from one of the
information systems, the interface control module receiving
data from the source in response to the corresponding
machine readable command;
     a text-to-speech converter coupled to the interface
15   module for converting text data received by the interface
control module to a converted speech segment and playing the
converted speech segment for the user; and
     a router coupled to the interface module for receiving
speech data from the source and playing a speech segment
20   corresponding to the speech data for the user.
2.   The universal interface of claim 1, wherein the
telephone is
wireless.
3.   The universal interface of claim 1, wherein the
25   sound-based command is provided by the user's voice.
4.   The universal interface of claim 1, wherein the
sound-based command is specified using one or more telephone
touch-tones.
5.   A universal interface for accessing one or more
30   information systems from a user telephone, the universal
interface comprising:
     an input converter for converting input from the user
telephone to commands;
     an interface control module coupled to the input
35   converter for receiving the commands from the input
converter; determining one of the information systems to be
accessed; converting the commands to commands recognizable
by the information system; forwarding the converted commands

to the information system; receiving data from the information system; detecting the form of the data from the information system; and storing information relating to a current state of the system;

5   a speech-to-text routing switch coupled to the interface control module for receiving data from the information system and control data from the interface control module;

      a speech-to-command converter coupled to the interface

10 control module for converting speech to commands, wherein the speech-to-command converter is coupled to the speech-to-text routing switch to receive speech and to forward commands to the interface control module;

      an output switch coupled to the interface control

15 module and the speech-to-text routing switch for receiving speech from the speech-to-text routing switch for receiving a control input from the interface control module, and for forwarding speech from the speech-to-text routing switch to the user telephone; and

20   a text-to-speech converter coupled to the output switch for receiving text from the interface control module, converting the text to speech, and forwarding the speech to the output switch to deliver speech to the user telephone.

      6. The universal interface of claim 5, wherein the user

25 telephone is a mobile telephone.

      7. The universal interface of claim 5, wherein the input converter comprises a speech-to-command converter.

      8. The universal interface of claim 5, wherein the input converter comprises a tone-to-command converter.

30   9. The universal interface of claim 5, wherein the interface control module integrates the data from the information system periodically or manually under user control, the interface control module further comprising:

      means for retrieving data from the information systems;

35   means for determining antecedent comparable relevance of the data;

      means for updating all of the data to reflect the most recent data;

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means for linking relevant data; and

means for exporting the linked data to the information system.

10.   The universal interface of claim 9, wherein the
5   information systems comprise two or more of the following:

a calendar;

a to-do list;

an address book;

voice mail;

10   e-mail; and

a web site.

11.   The universal interface of claim 5, wherein the
interface control module integrates and synchronizes (i) a
database of a personal information manager, (ii) a database
15   residing on a personal digital assistant, and (iii) a
database residing in the universal interface, the universal
interface coupled to a computer on which the personal
information database resides, wherein a computer further
comprises:

20   a first input terminal for receiving data from the
personal digital assistant;

a second input terminal for receiving data from the
universal interface;

a sensor for detecting a synchronization event
25   triggered by a user requesting synchronization of the
database of the personal digital assistant with the database
of the personal information manager;

an electronic mail system coupled to the Internet; and

control logic coupled to receive the synchronized event
30   from the sensor and to transmit data, over the electronic
mail system, to the interface control module, wherein the
control logic updates the data in each of the databases to
reflect the most recent data entered into any database.

12.   The universal interface of claim 11, wherein the
35   synchronization information is sent to the universal
interface in its entirety, in compressed form, or in
incremental form.

13.   The universal interface of claim 5, wherein the data

sent from the information system to the universal interface
is sent over the Internet.

14. The universal interface of claim 13, wherein the data
sent is encrypted.

5   15. The universal interface of claim 5, wherein the output
switch further comprises:
         a detector for determining whether the speech from the
speech-to-text routing switch is digital or analog;
         a sound card coupled to the detector to receive digital
10 data;
         a first speech routing switch for receiving a control
input from the detector, and speech from the detector or
speech from the sound card;
         a second speech routing switch for receiving the
15 control input from the interface control module and speech
from the first speech routing switch or speech from the
text-to-speech converter, the second speech routing switch
forwarding speech to the user telephone.

16. The universal interface of claim 5, wherein the
20 information system comprises at least one of: a dual tone
multiple frequency (DTMF) driven voice mail system, a voice
driven voice mail system, an electronic mail system, a web
site, and a personal information manager.

17. The universal interface of claim 5, wherein the system
25 determines one of the following:
         whether the voice commands are being received from a
user telephone;
         the information system to be accessed;
         whether the voice commands, after being converted to
30 commands, are recognizable to the information system;
         whether the converted commands have been forwarded to
the information system;
         whether data has been received from the information
system;
35   whether data from the information system is speech or
text;
         the state of the speech-to-text routing switch; and
         the state of the output switch.

18. The universal interface of claim 5, wherein the interface control module further comprises:

   a model for converting commands from the telephone into commands recognizable by the information system; and

5   a translator coupled to the input converter for retrieving the model corresponding to the information system to be accessed and for converting the commands to commands recognizable by the information system.

19. The universal interface of claim 5, wherein the
10 universal interface further comprises:

   means coupled to the input converter for signaling that the user telephone has received unintelligible words;

   means for restarting communication to the text-to-speech converter at a point a specified number of words back
15 from the point at which the communication ceased;

   means for forwarding the first specified number of words by spelling the words out; and

   means for continuing forwarding the data after the specific number of words.

20 20. The universal interface of claim 5, wherein the universal interface further comprises:

   means for detecting a first language in which the commands from the user telephone are received;

   means for detecting a second language associated with
25 the data received from the information system; and

   means for converting the data from the information system into the first language.

21. The universal interface of claim 20, wherein the universal interface further comprises means for detecting
30 more than one languages within a single fragment of data.

22. The universal interface of claim 5, further comprising a resource manager for establishing conference bridges to an external telephone having a telephone number, wherein:

   the interface control module detects, from the commands
35 from the input converter, whether a conference bridge request has been made;

   the interface control module retrieves the telephone number of the external telephone to establish the conference

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bridge;

the interface control module forwards the telephone number to the resource manager; and

the resource manager establishes a telephone connection with the external telephone.

23. The universal interface of claim 5, further comprising a facsimile manager for sending facsimiles to one or more facsimile machines, wherein:

the interface control module detects, from the commands from the input converter, whether a facsimile request has been made;

the interface control module retrieves a telephone number of a designated facsimile machine;

the interface control module forwards the data and the telephone number to the facsimile manager; and

the facsimile manager faxes the data to the designated facsimile machine.

24. The universal interface of claim 5, wherein the universal interface further comprises a pager manager for sending pager messages to one or more pagers, wherein:

the interface control module detects, from the commands from the input converter, whether a pager request has been made;

the interface control module retrieves data to be forwarded to the pager;

the interface control module retrieves a telephone number of a designated pager to which the data is to be forwarded;

the interface control module forwards the data and the telephone number to the pager manager; and

the pager manager forwards the data to the designated pager.

25. A universal interface for accessing data from one or more information systems comprising:

an input converter for receiving inputs from the user telephone and converting the inputs into commands;

an interface control module coupled to the input converter comprising:

means for periodically requesting data from the
information systems;

means for retrieving data from the information
system;

5   means for detecting the form of data from the
information system;

means for converting the data that is speech to
commands;

means for storing the data for later access by a
10   user telephone; and

means for storing information representing a
current state of the system; and further comprising:

means for receiving commands from the input
converter and means for detecting which of said stored
15   information is sought to be accessed;

a text-to-speech converter coupled to the interface
control module for receiving said requested stored text from
the interface control module, converting the text to speech,
and forwarding the speech to the user telephone.

20   26.   The universal interface of claim 25, wherein the user
telephone is a mobile telephone.

27.   The universal interface of claim 25, wherein the input
converter comprises a speech-to-command converter.

28.   The universal interface of claim 25, wherein the input
25   converter comprises a tone-to-command converter.

29.   The universal interface of claim 25, wherein the
interface control module integrates the data from the
information system periodically or manually under user
control, the interface control module further comprising:

30   means for retrieving data from the information systems;

means for determining antecedent comparable relevance
of the data;

means for updating all of the data to reflect the most
recent data;

35   means for linking relevant data; and

means for exporting the linked data to the information
system.

30.   The universal interface of claim 29, wherein the

information systems comprise two or more of the following:

a calendar;

a to-do list;

an address book;

5   voice mail;

e-mail; and

a web site.

31. The universal interface of claim 25, wherein the
interface control module integrates and synchronizes (i) a
10 database of a personal information manager, (ii) a database
of a personal digital assistant, and (iii) a database
residing in the universal interface, the universal interface
coupled to a computer on which the personal information
database resides, said computer comprising:

15   a first input terminal for receiving data from the
personal digital assistant;

a second input terminal for receiving data from the
universal interface;

a sensor for detecting a synchronization event, wherein
20 the event is triggered by a user requesting synchronization
of the database of the personal digital assistant with the
database of a personal information manager;

an electronic mail system coupled to the Internet;

control logic coupled to receive detection information
25 from the sensor and to transmit data, via the electronic
mail system, to the interface control module, wherein the
control logic updates the data in each of the databases to
reflect the most recent data entered into any one database.

32. The universal interface of claim 31, wherein the
30 synchronization information is sent to the universal
interface in its entirety, in compressed form, or in
incremental form.

33. The universal interface of claim 25, wherein the data
sent from the information system to the universal interface
35 is sent over the Internet.

34. The universal interface of claim 33, wherein the data
sent over the Internet is encrypted.

35. The universal interface of claim 25, wherein the

information system comprises at least one of: a dual tone
multiple frequency (DTMF) driven voice mail system, a voice
driven voice mail system, an electronic mail system, a web
site, and a personal information manager.

5   36.   The universal interface of claim 25, wherein the system
determines one of the following:
        whether the voice commands are being received from a
user telephone;
        the information system to be accessed;

10   whether the voice commands, after being converted to
commands, are recognizable to the information system;
        whether the converted commands have been forwarded to
the information system;
        whether data has been received from the information

15   system;
        whether data from the information system is speech or
text;
        the state of the speech-to-text routing switch; and
        the state of the output switch.

20   37.   The universal interface of claim 25, wherein the
interface control module further comprises:
        one or more models containing commands recognizable by
the information system;
        control logic for accessing the model that corresponds

25   with the information system to be accessed, converting
control commands to commands recognizable by the information
system, and forwarding the converted commands to the
information system.

     38.   The universal interface of claim 25, wherein the

30   universal interface further comprises:
        means coupled to the input converter for signaling that
the user telephone has received unintelligible words;
        means for restarting communication to the text-to-
speech converter at a point a specified number of words back

35   from the point at which the communication ceased;
        means for forwarding the first specified number of
words by spelling the words out; and
        means for continuing forwarding the data after the

specific number of words.

39.   The universal interface of claim 25, wherein the universal interface further comprises:

means for detecting a first language in which the
commands from the user telephone are received;

means for detecting a second language associated with the data received from the information system; and

means for converting the data from the information system into the first language.

40.   The universal interface of claim 39, wherein the universal interface further comprises means for detecting more than one language within a single fragment of data.

41.   A method for providing data from one or more information systems to a user telephone, comprising the steps of:

converting speech from the user telephone to text;

determining the information system to be accessed;

converting the text to commands recognizable by the information system;

forwarding the converted commands to the information system;

receiving data from the information system;

detecting the form of the data from the information system;

converting non-speech data from the information system into speech;

forwarding the speech data to the user telephone; and

storing information relating to the current state of the system.

42.   The method of claim 41, wherein converting speech from the user telephone further comprises converting speech from a mobile telephone.

43.   The method of claim 41, wherein converting speech from the user telephone to commands further comprises converting speech to commands.

44.   The method of claim 41, wherein converting speech from the user telephone to commands further comprises converting dual-tone-multiple-frequency (DTMF) information to commands.

45. The method of claim 41, further comprising
synchronizing the data from the information systems by
periodically, or upon command:

   retrieving data from the information systems;

5   comparing the data to determine which data is most
recent;

   updating all of the data to reflect the most recent
data;

   linking relevant data; and

10   exporting the linked data to the information systems.

46. The method of claim 45, wherein the information systems
comprise two or more of the following:

   a calendar;

   a to-do list;

15   an address book;

   voice mail;

   e-mail; and

   a web site.

47. The method of claim 41, further comprising integrating

20   and synchronizing (i) a database of a personal information
manager, (ii) a database of a personal digital assistant,
and (iii) a database residing in a universal interface, by:

   receiving data from the personal digital assistant;

   receiving data from the universal interface;

25   detecting a synchronization event, wherein the event is
triggered by a request for synchronization of the database
of the personal digital assistant with the database of a
personal information manager;

   transmitting data, via an electronic mail system, to

30   the interface control module; and

   updating the data in each of the databases to reflect
the most recent data entered into any one database.

48. The method of claim 47, wherein the synchronization
information is sent to the universal interface either in its

35   entirety, in compressed form, or in incremental form.

49. The method of claim 48, further comprising sending the
data from the information system to the universal interface
over the Internet.

50.   The method of claim 49, further comprising encrypting
the data from the information system before sending the
encrypted data over the Internet.

51.   The method of claim 41, wherein the information system
5   is comprised of at least one of: a voice mail system, and
an electronic mail system, a web site, and a personal
information manager.

52.   The method of claim 41, wherein storing information
relating to the current state of the system further
10   comprises the steps of determining:

whether the voice commands are being received from a
user telephone;

the information system to be accessed;

whether the voice commands, after being converted to
15   text, have been converted into commands recognizable by the
information system;

whether the converted commands have been forwarded to
the information system;

whether data has been received from the information
20   system;

whether data from the information system is speech or
text;

the state of the speech-to-text routing switch; and

the state of the output switch.

25   53.   The method of claim 41, wherein converting the text to
commands recognizable by the information system further
comprises accessing one or more models for converting
commands from the telephone into commands recognizable by
the information system.

30.   54.   The method of claim 41, further comprising:

receiving a command from the user telephone signaling
that the user telephone has received unintelligible words;

ceasing communication to the user telephone;

restarting communication to the user telephone at a
35   point a specified number of words back from the point at
which the communication ceased;

forwarding the first specified number of words by
spelling the words out; and

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continuing to forward the remainder of the data.

55. The method of claim 41, further comprising:

detecting the language in which the commands from the user telephone are received;

detecting the language of the data received from the information system;

converting the data from the information system into the language in which commands from the user telephone are received.

56. The method of claim 55, wherein detecting the language of the data received from the information system further comprises detecting more than one language within a single piece of data.

57. The method of claim 41, further comprising establishing conference bridges to one or more external telephones, by:

detecting, from the commands from the input converter, whether a conference bridge request has been made;

retrieving a telephone number of the external telephone to which the conference bridge is to be established;

forwarding the telephone number to a resource manager; and

establishing, through the resource manager, a telephone connection with the external telephone, thereby opening a line of communication between the user telephone and the external telephone.

58. The method of claim 41, further comprising sending facsimiles to one or more facsimile machines, by:

detecting, from the commands from the input converter, whether a facsimile request has been made;

retrieving data to be faxed;

retrieving a telephone number of a designated facsimile machine to which the data is to be forwarded;

forwarding the data and the telephone number to a facsimile manager; and

with the aid of the facsimile manager, faxing the data to the designated facsimile machine.

59. The method of claim 41, further comprising sending pager messages to one or more pagers, by:

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detecting, from the commands from the input converter, whether a pager request has been made;

retrieving data to be forwarded to a pager;

retrieving a telephone number of a designated pager to

5   which the data is to be forwarded;

forwarding the data and the telephone number to a pager manager; and

with the aid of the pager manager, forwarding the data to the designated pager.

10   60. A method for accessing data from one or more information systems comprising the steps of:

retrieving data from the information system;

detecting the form of data from the information system;

converting the data that is speech to text;

15   storing the data for later retrieval; and

storing information representing the current state of the system.